UNITED STATES PATENT AND TRADEMARK OFFICE

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SHUMAKER & SIEFFERT, P. A.	BHANDARI, PUNEET	
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SUITE 105	ART UNIT	PAPER NUMBER
ST. PAUL, MN 55125	2666	

DATE MAILED: 07/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO 90C (Rev 10/03)

Office Action Summary	Application No.	Applicant(s)
	10/037,144	RASHID ET AL.
	Examiner	Art Unit
	Puneet Bhandari	2666

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 December 2001*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *39-73* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *39-73* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *21 December 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some *   c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date *4/22/2005*.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

Double Patenting

1.   The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2.   Claim **39** is provisionally rejected under the judicially created doctrine of

obviousness-type double patenting as being unpatentable over claim 05 of copending

Application No. 09/900514. Although the conflicting claims are not identical, they are

not patentably distinct from each other because of following correspondences:

Regarding claim

This is a <u>provisional</u> obviousness-type double patenting rejection because the

conflicting claims have not in fact been patented.

Regarding claim **39**, An apparatus corresponds to " an apparatus" of claim 1, on

page 3 of co-pending application.

The limitation apparatus comprising a set of input ports to receive data packets

corresponds to "a set of input ports to receive data packets for a plurality of priority

levels" of claim 1, on page 3 of co-pending application.

The limitation a set of sink ports in communication with said set of input ports to receive and forward said data packets corresponds to "a set of sink ports coupled to said set of input ports to receive and forward said data packets" of claim 1, on page 3 of co-pending application.

The limitation each sink port in said set of sink ports concurrently receives a plurality of data packets corresponds to " sink port in said set of sink ports snoops data packet" of claim 5, on page 3 of copending application.

The limitation a set of data rings in communication with said set of input ports and said set of sink ports corresponds to "a set of data rings in communication with said set of input ports and said set of sink port" of claim 1, on page 3 of copending application.

Claim 39 differ from claim 1 of the co-pending application for following reasons. Claim 39 does not claim at least one of the sink ports include a bandwidth allocation circuit that calculates the weighted average bandwidth for each of the priority levels and rejects packet data having a first priority level in said plurality of priority levels when the weighted average bandwidth for at least two of the priority level exceeds a predetermined value. Therefore, claim 39 merely broadens the scope of claim 1 of co-pending application.

It has been held that the omission of an element and its function is an obvious expedient if the remaining elements perform the same function as before. See In re Karlosn, 136 USPQ 184 (CCPA). Also not Ex parte Rainu,168 USPQ 375 (Bd.

App.1969). The omission of reference element whose function is not needed would

have been obvious to one skilled in art.

Claim Objections

3.   Claims **39,41,43,44 & 52** are objected to because of the following informalities:

Regarding claim **39**, an objection is made to the use of the phrase "adapted to"

on line 2-3, page 2. The use of this phrase is optional language (see MPEP-2106.II.C).

Regarding claim **41**, an objection is made to the use of the phrase "adapted to"

on line 2, page 2. The use of this phrase is optional language (see MPEP-2106.II.C).

Regarding claim **43**, an objection is made to the use of the phrase "adapted to"

on line 2, page 2. The use of this phrase is optional language (see MPEP-2106.II.C).

Regarding claim **44**, an objection is made to the use of the phrase "adapted to"

on line 2, page 2. The use of this phrase is optional language (see MPEP-2106.II.C).

Regarding claim **52**, an objection is made to the use of the phrase "adapted to"

on line 4, 7 and 9 page 4. The use of this phrase is optional language (see MPEP-

2106.II.C).

Appropriate correction is required.

Claim Rejections - 35 USC § 102

4.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States

only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5.   Claims **39-44 & 46-73** are rejected under 35 U.S.C. 102(e) as being anticipated by Dai et al. (US 6,658,016).

Regarding claim **39**, Fig 2A of Dai et al. anticipates an apparatus (58) comprising a set of input ports (input ports-88 A_0", A_1", A_2".....A_7") to receive data packets ,a set of sink ports (output ports-84 A_0', A_1', A_2'.....A_7') in communication with said set of input ports (input ports-88 A_0", A_1", A_2".....A_7") to receive and forward said data packets and a set of data rings (16,22) in communication with said set of input ports (input ports-88 A_0", A_1", A_2".....A_7") and said set of sink ports(output ports-84 A_0', A_1', A_2'.....A_7').

The limitation each sink port in said set of sink ports (output ports-84 A_0', A_1', A_2'.....A_7') concurrently receive a plurality of data packets (data stream) is anticipated by simultaneously transmitting the data stream to the network output ports disclosed in column 8, lines 50-61.

Regarding claim **40**, each data packet in said plurality of data packets has a same destination address is anticipated by data stream which is a collection of data packets is transmitted to appropriate one of network ports disclosed in column 8, lines 55-61.

Regarding claim **41**, Fig 2A anticipates each sink port in said set of sink ports (output ports-84 A_0', A_1', A_2'.....A_7') includes a storage buffer (80) to concurrently store said plurality of data packets also disclosed in column 8, line 37-61.

Regarding claim **42 & 57** Fig 2A anticipates set of data rings (16,22) couples each sink port in said set of sink ports (output ports-84 A_0', A_1', A_2'.....A_7') to each input port in said set of input ports (input ports-88 A_0'', A_1'', A_2''.....A_7'') .

Regarding claim **43 & 54** Fig 2A anticipates first sink port in said set of sink port (output ports-84 A_0', A_1', A_2'.....A_7') receive a first data packet (control message from control ring processing circuit) in said plurality of data packet and a second data packet (data packet from data ring processing circuit) in said plurality of data packets also disclosed in column 13, lines 1-35.

The step of a first input port in said set of input ports (input ports-88 A_0'', A_1'', A_2''.....A_7'') sources said first data packet (control message from control ring processing circuit) disclosed in column 13, lines 30-61.

The step of a second input port in said set of input ports (input ports-88 A_0'', A_1'', A_2''.....A_7'') sources at least a portion of said second data packet (control message from control ring processing circuit) during the time when said first input port sources said first data packet disclosed in column 13, lines 63-67 and column 1,4, lines 1-35.

Regarding claim **44**, first sink port receives said at least portion of second data packet (control message from control ring processing circuit-PLA) during a time said first sink port receives said first data packet (data packet from data ring processing circuit) disclosed in column 13, lines 1-35.

Regarding claims **46 & 58**, the step of first sink port in the said set of sink port snoops data packet on each ring in said set of data rings is anticipated by data

distribution unit coupled to the sink port reads the header information (snoops data packet) of the data burst disclosed in column 15, lines 35-45.

Regarding claim **47**, the step of first sink port in said set of sink port snoops the data packet on each data ring in said set of data rings to determine whether said data packets are addressed to a destination supported by said first sink port is anticipated by packet routing and control unit which is coupled to the sink port reads the destination address of the data packet disclosed in column 14, lines 11-36.

Regarding claim **48**, Fig 2A of Dai et al. anticipates a first set of input ports (input ports-88 A_0", A_1", A_2".....A_7") is coupled to the first data ring (data ring 16) in said set of data rings and a second set of input ports (input ports-88 A_0", A_1", A_2".....A_7") in said set of input ports is coupled to a second data ring (control ring 22) in said set of data ring, wherein in first set of input ports (input ports-88 A_0", A_1", A_2".....A_7") includes said first input port and said second set of input ports (input ports-88 A_0", A_1", A_2".....A_7") includes said second input port.

Regarding claim **49**, the limitation said first sink port snoops data packets on each data ring in said set of data ring and determines whether to accept said first data packet based on set criteria is anticipated by destination managing unit coupled to the sink port determine whether to accept data packet, disclosed in column 12, lines 63-67 and column 15, lines 1-29; wherein said set of criteria includes,

The step of said first sink port having sufficient storage space for storing said first data packet is anticipated by output buffer manager monitors the availability of buffer

space in corresponding one of transmit buffer queues disclosed in column 15, lines 45-55,

The step said first sink port supporting a destination targeted by said first data packet is anticipated by packet routing and control unit which is coupled to the sink port reads the destination address of the data packet disclosed in column 14, lines 11-36, and

The step a total number of packets being received by said first sink port not exceeding a predetermined number of packets is anticipated by destination managing unit monitor the data packet so that the amount of packet received by the sink port does not exceed a threshold amount of buffer space as disclosed in column 10, lines 29-36 and column 29 lines 65-66 and column 30, lines 1-67.

Regarding claim **50**, Fig 3A anticipates said sink port (output ports-84 A_0', A_1', A_2'.....A_7') includes a ring interface (interface 248 to couple data ring to the sink port) coupled to said set of data rings to receive data from data packets also disclosed in column 12, lines 40-63.

Fig. 3A also anticipates a storage buffer (80) coupled to said ring interface to receive and store data also disclosed in column 12, lines 63-67 and column 13, lines 1-15.

Fig. 3A also anticipates an output port (output ports-84 A_0', A_1', A_2'.....A_7') coupled to the said storage buffer (80) to receive said data from the said storage buffer and transmit said data on a communication link disclosed in column 12, lines 63-67 and column 13, lines 1-15.

Regarding claims **51 & 59** switching devices (12) of Fig. 1 anticipates a crossbar switch.

Regarding claim **52**, Fig 2A anticipates an apparatus comprising a set of input ports (input ports-88 A_0", A_1", A_2".....A_7") to receive data packets and set of sink ports(output ports-84 A_0', A_1', A_2'.....A_7') in communication with said set of input ports to receive and forward said data packets.

The limitation a first sink port in said set of sink ports snoop data packet received by the said set of input ports to determine whether said data packets are targeted to a destination supported by said first sink port is anticipated by data distribution unit coupled to the sink port reads (snoops data packet) the header information of the data burst received from the input ports and distributes them to appropriate output ports disclosed in column 15, lines 35-45.

The limitation said first sink port receive a first data packet and a second data packet is anticipated by two blocks of available space for accommodating two burst of data packets (first data packet and a second data packet) at output port disclosed in column 21, lines 20-64, and

The limitation said first sink port receives a portion of said second data packet at a time when said sink port receives said first data packet (pipelined manner) is anticipated by output port receives the first one or two burst of data packets in a pipelined manner as disclosed in column 21, lines 20-65.

Regarding claims **53, 61 & 68**, the limitation said first data packet is targeted to the first destination and second data packet is targeted to said first destination s

anticipated by two blocks of available space for accommodating two burst of data

packets (first data packet and a second data packet) at output port disclosed in column

21, lines 20-64.

Regarding claim **55,** Fig 2A of Dai et al. a set of data rings (16,22) in

communication with said set of input ports (input ports-88 A_0", A_1", A_2".....A_7") and said

set of sink ports(output ports-84 A_0', A_1', A_2'.....A_7').

Regarding claim **56,** Fig 3A anticipates said sink port (output ports-84 A_0', A_1',

A_2'.....A_7') includes a ring interface (interface 248 to couple data ring to the sink port)

coupled to said set of data rings to receive data from data packets also disclosed in

column 12, lines 40-63.

Fig. 3A also anticipates a storage buffer (80) coupled to said ring interface to

receive and store data also disclosed in column 12, lines 63-67 and column 13, lines 1-

15 and said storage buffer is adapted to concurrently store said first and second data

packet is anticipated by two blocks of available space for accommodating two burst of

data packets (first data packet and a second data packet) at output port disclosed in

column 21, lines 20-64.

Fig. 3A also anticipates an output port (output ports-84 A_0', A_1', A_2'.....A_7')

coupled to the said storage buffer (80) to receive said data from the said storage buffer

and transmit said data on a communication link disclosed in column 12, lines 63-67 and

column 13, lines 1-15.

Regarding claim **60,** a method comprising

(a) The step of receiving data packets is anticipated by output ports-84 A_0', A_1',

A_2'.....A_7' receives data packets from data distribution control unit as disclosed in Fig

3A or column 12, lines 63-67;

(b) The step of transferring said set of data packets to a set of data rings in

communication with a set of sink ports is anticipated by packet routing and control unit

transfers the data packet to the destination devices using the set of rings as disclosed in

column 14, lines 11-64;

(c) The limitation a sink port in said set of sink ports, determining whether to

accept data packets in said set of data packets, based on a set of criteria is anticipated

by data distribution control coupled to the sink port determine whether to accept data

packet based on header information disclosed in column15, lines 35-45; and

(d) The limitation said sink port, collecting data for data packets accepted by said

sink port, is anticipated by each output port has a buffer space for receiving burst of

data packets disclosed in column 15, lines 45-55.

(1) The limitation said sink port collecting data for a first data packet is

anticipated by output port receiving first burst of data packet, disclosed in column

21, lines 20-65 and

(2) The limitation said sink port collecting data for a portion of a second

data packet during a time period when said sink port collecting data for a first

data packet (pipelined manner) is anticipated by receiving the first one or two

burst of data packets in a pipelined manner as disclosed in column 21, lines 20-

65.

Regarding claims **62 & 69** step of receiving said first data packet is anticipated by output port receiving first burst of data packet, disclosed in column 21, lines 20-65 and

The step of receiving a portion of second data packet during the time period of receiving the said first data packet is anticipated by receiving the first one or two burst of data packets in a pipelined manner as disclosed in column 21, lines 20-65.

Regarding claims **63 & 70,** step of transferring said first data packet to a data ring in said set of data rings is anticipated by one or two burst of data packet are transferred from the source device to the destination device via the data ring as disclosed in column 21, lines 20-65.

The step of transferring a portion of said second data packet to a data ring in said set of data rings during a time period when the above step is being performed in anticipated by data packets are transferred is a pipelined manner as disclosed in column 21, lines 20-65.

Regarding claims **64 & 71**, the step determining whether to accept data packet in said set of data packets based of a step of criteria is anticipated by destination managing unit coupled to the sink port determine whether to accept data packet, disclosed in column 12, lines 63-67 and column 15, lines 1-29;

The step includes said sink port, determining whether to accept a data packet includes a destination address supported by said sink is anticipated by data distribution control unit reads the header information (destination address) to route the data packet disclosed in column 14, lines 11-64;

The step includes said sink port, determining whether to accept said data packet based on additional criteria in said set of criteria,

The step of determining whether said sink port is enabled to receive data packets is anticipated by making a determination if the last burst of the data burst has been received by the transmit buffer queue 80 as disclosed in column 29, lines 43-65,

The step of determining whether said sink port has sufficient resources to store said data packet is anticipated by determining available spaces or credits in transmit buffer queues as disclosed in column 29, lines 43-65;

The step of determining whether said sink port is currently receiving a maximum allowable number of packets (at least one block or credit) is anticipated by step of determining if there is at least one block of space available at associated transmit buffer queue disclosed in column 29-lines 55-67 and column 30, lines 1-15;

The step of determining whether said data packet has a number of bytes (data packet) within a predetermined range (bandwidth available) is anticipated by determination made if there is sufficient amount of bandwidth available to transmit the data packet to destination port disclosed in column 30, line 15-67.

Regarding claims **65 & 72**, Fig 10B block 772 anticipates said sink port issuing rejection signal if said sink port determines not to accept said data packet, and said rejection signal terminates further reception of said data packet by the said sink port is anticipated by if minimum amount of resources are not available data transmission is stopped as disclosed in column 30, lines 60-67.

Regarding claims **66 & 73**, said sink port transmitting said data packet collected in step (d) is anticipated by output ports-84 A_0', A_1', A_2'.....A_7' transmitting the data packet to appropriate destination devices as disclosed in column 8, lines 35-60.

Regarding claim **67**, A method comprising

(a) Step of receiving a set of data packets on a set of input ports is anticipated by receiving data packet input ports-88 A_0'', A_1'', A_2''.....A_7'' as disclosed in Fig 3A and column 13, lines 63-67 and column 14, lines 1-10.

(1) The step of receiving a first data packet is anticipated by first data burst received at the source device to be transmitted to the destination device disclosed in column 21, lines 20-64 and

(2) The step of receiving a second data packet is anticipated by two data burst received at the source device to be transmitted to the destination device disclosed in column 21, lines 20-64 and;

(b) The limitation a sink port in a set of sink ports in communication with said set of input ports, determining whether to accept data packets in said set of data packets based on a set of criteria is anticipated by data distribution control coupled to the sink port determine whether to accept data packet based on header information disclosed in column15, lines 35-45; and

(c) The limitation said sink port, collecting data for data packets accepted by said sink port, is anticipated by each output port has a buffer space for receiving burst of data packets disclosed in column 15, lines 45-55.

(1) The limitation said sink port collecting data for a first data packet is

anticipated by output port receiving first burst of data packet, disclosed in column

21, lines 20-65 and

(2) The limitation said sink port collecting data for a portion of a second

data packet during a time period when said sink port collecting data for a first

data packet (pipelined manner) is anticipated by receiving the first one or two

burst of data packets in a pipelined manner as disclosed in column 21, lines 20-

65.

Claim Rejections - 35 USC § 103

6.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

7.   Claim **45** rejected under 35 U.S.C. 103(a) as being unpatentable over Dai et al.

(US 6,658,016) in further view of Yamamoto et al (US 6,392,991).

Regarding claim **45**, Dai et al. teaches all the limitation of claim 45 (see 102

rejection for claim 44) but Dai et al. fails to disclose wherein said set of data rings

includes three rings. However Yamamoto et al. discloses at three data rings (refer Fig.7

and column 3, lines 65-67). At the time invention was made it would have been obvious

to one in ordinary skill in at to add to the apparatus of Dai three ring architecture of

Yamamoto et al. One would be motivated to do so to communicate efficiently between

various nodes (refer column 4, lines 1-18 of Yamamoto et al.)

Conclusion

8.   The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure. Robertson et al. (US 2001/0038633), Szczepanek et al. (US

6,621,818), Leung (6,466,580), Wong et al. (US 6,363,077), Hartmann et al. (US

5,905,873), Sang et al. (US 6,563,818) and Merchant (US 6,460,088).

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Puneet Bhandari whose telephone number is 571-272-

2057. The examiner can normally be reached on 9.00 AM To 5.30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Seema Rao can be reached on 571-272-3174. The fax phone number for

the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

Puneet Bhandari
Examiner
Art Unit 2666

DANG TON
PRIMARY EXAMINER